


Emerging Risks
ERM Symposium
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What are Emerging Risks


- Evolving risks (creeping, mean reverting)
 - Home mortgage market
 - Climate change
- Tail risk (recently unseen)
 - Earthquake/asteroid/disease
- Rumsfeld's Unknown/Unknowns
 - **Known/unknown – Napa fault line**
 - Unknown/known – improper pricing, mortality
 - Known/known – historical data, auto
 - Unknown/unknown – ?



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Emerging Risks


- May be internally or externally generated
 - Higher order impact/interaction (e.g., oil spill/tourism)
 - May be positive/unclear events (e.g., drones, driverless cars, genetically modified food)
 - *Environmental scan, internal survey, external workshops, stress testing*
- Outliers in real distribution
- Next big risk is likely to be something new
- Time horizon – longer than your business plan



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Survey


- Emerging risks (23)
- Top 5 emerging risks (including #1)
- Anchoring
- Current topics
- Is ERM improving results?



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Emerging Risks

- Economic
 - Oil price shock
 - Currency trend
 - Chinese economic hard landing
 - Asset price collapse
 - Financial volatility
- Environmental
 - Climate change
 - Freshwater loss
 - Tropical storms
 - Earthquakes
 - Severe weather



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Emerging Risks


- Geopolitical
 - International terrorism
 - Weapons of mass destruction
 - Interstate/civil wars
 - Failed and failing states
 - Transnational crime
 - Globalization fallback
 - Regional instability
- Societal
 - Infectious diseases
 - Chronic diseases
 - Demographic shift
 - Liability regimes/regulations
- Technological
 - Cyber security / infrastructure
 - Technology / Space weather



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Current Environment Matters

<p>April 2008</p> <ul style="list-style-type: none">➢ Oil price \$114➢ S&P 500 1,386➢ Currency 1.56 \$/Euro <p>November 2008</p> <ul style="list-style-type: none">➢ Oil price \$68➢ S&P 500 969➢ Currency 1.27 \$/Euro	<p>Fall 2012</p> <ul style="list-style-type: none">➢ Oil price \$92➢ S&P 500 1,440➢ Currency 1.29 \$/Euro <p>Fall 2014</p> <ul style="list-style-type: none">➢ Oil price \$91➢ S&P 500 1,972➢ Currency 1.26 \$/Euro
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Anchoring – Behavioral Finance

<ul style="list-style-type: none">• April 2008<ul style="list-style-type: none">• 57% Oil price shock• 40% Climate change• 40% Blow up in asset prices	<ul style="list-style-type: none">• October 2014<ul style="list-style-type: none">• 58% Cyber security/ Infrastructure• 44% Financial volatility• 41% International terrorism• 37% Regional instability• 31% Asset price collapse
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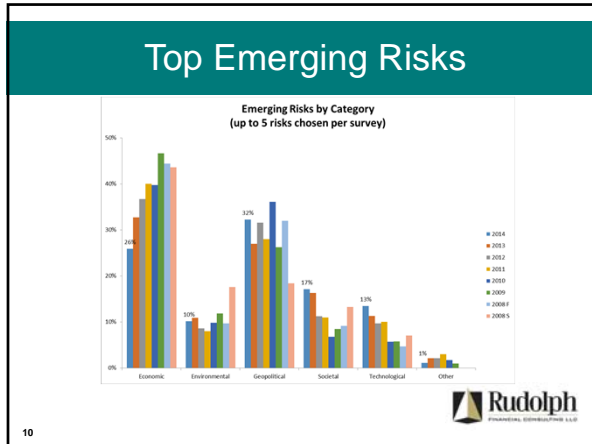
Interesting Revelations 2014

- Cyber now top risk
- Economic fell
- Geopolitical up
- Move toward leading indicators
- Finding role within strategic team
- Specific comments



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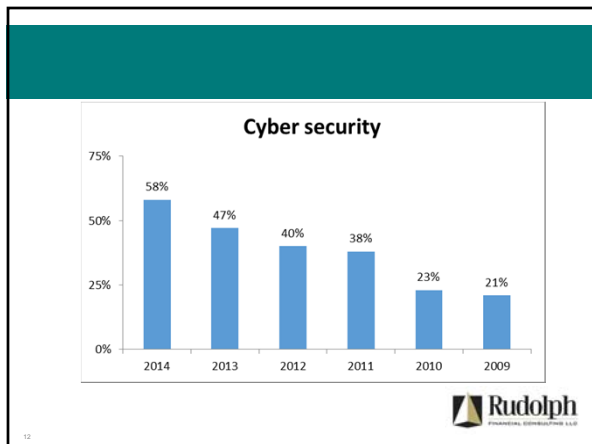
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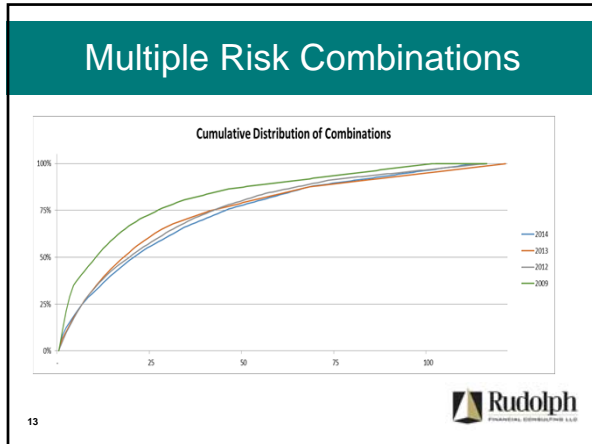
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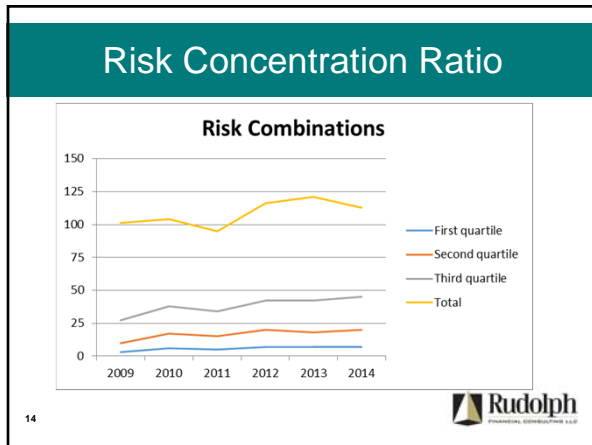


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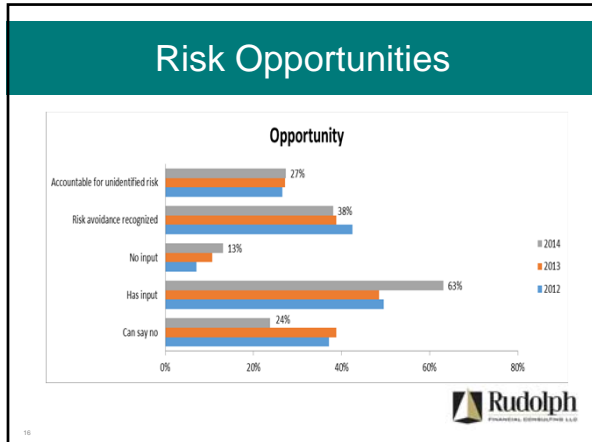


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- ### Population Growth
- Interactions with other risks (up to 3)
 - Demographic shifts 18%
 - Pandemics/infectious diseases 14%
 - Loss of freshwater services 11%
 - Regional instability 10%
 - Chronic diseases 8%
 - How does this impact our businesses?
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- ### Is ERM Working? NO
- ERM is a way for a company to "feel good"
 - Illusion: activity without substance (not relied on)
 - Bureaucratic
 - ERM gives a false sense of security
 - Compliance driven (cost)
 - So many risks that risk manager freezes up
 - Analogy: reduces likelihood of fender-bender, but not likelihood of a serious collision
 - **CULTURE!**
- Rudolph**
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- ### Is ERM Working? YES
- Decision makers are engaged
 - Risks are more transparent
 - Greater awareness of potential risks
 - Improved risk/return understanding
 - Better risk management in the industry allows more realistic pricing
 - Best practices incorporate strategic planning
 - Made decision-making more fact-based; enabled better goal-setting.
- Rudolph**
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Qualitative/Quantitative

- *A poor quantification trumps a strong qualitative discussion.*
- *Qualitative analysis provides the backbone of management decision making.*
- *In almost all cases there is some measure of both. Quantification requires an initial qualitative assessment of how the risk will manifest and the associated impact; otherwise, there is nothing to quantify.*
- What is our advantage as risk managers?



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To access surveys/articles

<http://www.soa.org/Research/Research-Projects/Risk-Management/research-emerging-risks-survey-reports.aspx>



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Thank you! MAX J. RUDOLPH, FSA CFA CERA MAAA



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